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ORNITHOLOGICAL NOTES FROM THE FÆROE ISLANDS.

Communicated by Capt. H. W. Feilden.

The following notes are based on information forwarded by my valued friend and correspondent, Herr H. C. Müller, of Thorshavn, and relate to occurrences subsequent to 1872, in which year I visited the Færoese Group, and recorded in the pages of 'The Zoologist' my ornithological experiences whilst there.*

Falco æsalon.—Müller mentions finding a nest of the Merlin on the 30th June, 1875, containing four young ones. On the 6th July one of the young was nearly able to fly well, and on being disturbed the three others left the nest. The Merlin is resident throughout the year in the Færoes. I have compared specimens obtained there with a series from other parts of the world, and there does not appear to be any peculiar shade of colouring in the plumage of the birds said to be resident in those islands.

Turdus pilaris.—The Fieldfare is not by any means a regular winter visitor; but on the 6th November, 1874, a flock of thirty was seen in the neighbourhood of Thorshavn.

Turdus iliacus.—Redwings generally arrive in the Færoe Islands in April and May on their way north, and again in September during the migration south. On the 11th April, 1874, a large flock numbering some forty individuals appeared in a garden near Thorshavn, belonging to Mr. Hansen, where they remained until the 26th of the same month.

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* See 'The Zoologist,' 1872, pp. 3210, 3245, and 3277.

Caprimulgus europæus.—The Nightjar is a rare and uncertain straggler to the Færoes. Müller informs me of an example being captured on the 28th June, 1874. Three instances of its occurrence have been previously recorded.

Columba palumbus.—A single Ring Dove was obtained on the 23rd May, 1874.

Turtur auritus.—The Turtle Dove is a very uncommon straggler to the Færoes. A single example was observed flying about the neighbourhood of Thorshavn during the latter part of June, 1873.

Vanellus cristatus.—The Lapwing has hitherto been recorded only as a spring and winter visitant; but on the 2nd July, 1875, a pair of these birds hatched out four young ones in the neighbourhood of Midvaag. Müller remarks that this is the first known instance of this species breeding in the Færoe Islands.

Scolopax rusticola.—Previously only one occurrence of the Woodcock had been recorded; but on the 11th and 16th January, 1873, single birds of this species were seen on the hill between Kirkeboe and Thorshavn.

Pagophila eburnea.—In January, 1873, an adult Ivory Gull was procured on the island of Nalsoe, and another from Sandoe in February of the same year.

Larus glaucus.—This species was very abundant in the Færoes during December, 1876.

Larus leucopterus.—A single example of the Iceland Gull was seen by Müller in the winter of 1876.

Stercorarius pomatorhinus.—From August to October, 1873, as well as in 1874, the Pomatorhine Skua was numerous.

Stercorarius parasiticus.—Buffon's Skua is recorded by Müller as having been numerous between August and October, 1873. This species has not been found breeding in the Færoe Islands.

Fratercula arctica.—In 1874 the number of Puffins killed on the island of Vaagoe amounted to 70,000, and on the island of Myggenæs to 80,000 during the same season.

Puffinus griseus.—Müller informed me of the capture of one of these birds, a female, on the 4th August, 1873, which I recorded in 'The Zoologist' for 1875 (p. 4495), under the name *Puffinus fuliginosus*, on his authority. On the 26th October, 1876, a second example, a male, was captured and brought to him. This specimen is now in the Museum at Copenhagen.

Puffinus major.—Müller seems to think that this species is becoming more common around the Færoe Islands than formerly. An example was procured on the 12th June, 1875, another on the 7th July, and a third on the 4th August, 1877, all three being females.

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CONDOR HUNTING ON THE SIERRAS.

By E. W. White, F.Z.S.*

During a late three-months' residence on these life-giving hills, my mind was made up to organize a naturalist's expedition into the region of the king of the skies. Pitching my head-quarters at Cosquin, on the first range, distant N.W. from Cordova thirty-five miles, and with the kind aid of Don Enrique Cooke, of that place, arrangements were soon completed for the purpose, and we accordingly started from his house on the morning of the 14th January, 1878, at about 8 A.M. Our party consisted of two native gentlemen and myself, mounted on horses, with two peons mounted on mules carrying, besides their riders, bedding and other necessaries. A good sportsman would have despised our arms, indeed, but not the panniers, which were loaded with the good things of this life. My rifle being unserviceable, on account of damp ammunition, another gentleman lent me his, but unfortunately could produce only three cartridges, the remaining shooting-iron being a double-barrelled fowling-piece, besides a small revolver stuck in my belt. Well might we look forward with some anxiety to the result of our attack, with such slender means at our disposal; but having heard of the skill of the native with the lasso, we determined to proceed, and the sequel will show how that formidable weapon is more than a match for this enormous and powerful vulture.

Our route lay through the village of Cosquin, across the river, and proceeding for a league on the high road to San Juan, we then branched off eastwards. Here we penetrated the woods of

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* From 'The Standard and River Plate News,' February 28th and March 1st, 1878. Published at Buenos Ayres.

Tala, Mimosa, &c., that cover the gentle slopes rising one above another to the foot of the mountains, and, following the cattle-tracks, had great difficulty in preserving our skins and clothes whole from the almost impassable barrier of formidable thorns. Of course, Indian-file was the order of the day for another league, which brought us to the foot of the mountains,—a bold and towering range, flanked by a rushing mountain torrent, which we had to cross, and thence, *excelsior*, through dense forests of very fine growth, the trees averaging sixty to eighty feet, with a dense brushwood of sweetly-scented medicinal herbs, with which the Sierras abound, and which, crushed by the horses' hoofs, presented us with a real mountain bouquet.

Hard work for the horses! for besides having to cross mountain streams every five minutes, granitic slippery boulders of two or three feet high everywhere blocked our path and had to be surmounted, the rider generally clinging to the horse's neck. A sudden turn in the path brought us to an open space from which the view was exquisite, hill and dale melting into that airy purple gauze which separates the physical from the ideal. No sound to break the solemn stillness, save the distant roar of some mountain torrent or the plaintive cooing of some solitary dove. Here both Nature and our own bodily wants invited us to rest; and what fitter place for horse or man? Luxuriant herbage for the former, for the latter the sombre shade of the towering Quebracho, Algarroba, Tala, Coco, Espinillo, Tintitaco, and the Chañà, the latter of which produces a fruit much resembling the date in flavour. A bubbling stream at our feet, a back-ground of picturesque boulders, many of which, half-hidden in the dense foliage, weighed hundreds of tons, and beds of moss inviting to the midday *siesta*. Lazily reclining, "*sub tegmine fagi*," and watching those richly ornamented flying-flowers chasing one another through space, grandeur, solitariness and thoughts of home and distant friends flit through the mind. But time is inexorable; we resume our march, and, leaving the woods behind, emerge upon ground covered with long coarse grass springing from between the stones. The absence of animal life is characteristic of this elevated region; for with the exception of here and there an Eagle perched on a giddy rocky eminence, or a noble Condor circling high, like a moving speck, in the lofty air, nothing relieves the monotony of the noiseless scene; and yet how the earth sparkles, as though sown with brilliants, for flashing in every direction lies the inexhaustible mica.

One summit is soon climbed, and then at our feet lay the valley of Cosquin, about nine miles by two, the Rio Primero, like a silver thread, winding through it, the magnificence of the panorama recompensing us for the difficulties of the ascent. On the opposite side of the valley a succession of well-wooded hills extends one above another to the foot of the second range of the Sierras, 5000 feet high, and distant about twelve miles from the first. Our object was to reach the interior of the Sierras, which at this point average from five to six miles in breadth, and rise to an elevation of 3500 feet. Minerals are scarce in this part, although one or two old mines were passed, yielding carbonate of copper and of rich quality. Guanacos exist, but are scarce, and wild hogs, too, in the inaccessible parts of the woods below. Mounting still upwards, we reached the splendid pasture lands of the summits, presenting gentle, sloping terraces with long valleys threading in and out, and charming glens branching off; rich grass is abundant, but no tree nor shrub even meets our view: the cattle begin to be more numerous, and presently we arrive at the stone-wall boundaries which mark the limits of each *estancia.* So light and clear is the air that it imparts a positive sensation of delight to breathe it, and fatigue is forgotten. We dismounted at an *estancia* house and were received with the usual native politeness, and, *maté* being handed round, sent forward the peons to give notice of our arrival to the *estanciero* on whose property the hunt was to take place. This gentleman, whose name is Torres, welcomed our arrival with the utmost hospitality, although the dilatory peons had not yet put in an appearance to warn him of our approach. The *estancia* house—a very picturesque old building, faced by a hoary trained vine—has a *patio* in front, bounded by a trickling rivulet, shaded by patriarchal willows. An orchard of six squares, filled with various thriving fruit trees, stands adjoining. A few barns and other outbuildings, *alfalfa,* and wheat-fields, complete the exterior picture. No long time elapsed ere we were seated at a breakfast table, not certainly groaning, but literally creaking, with abundant fare. It is scarcely necessary to remark that we did justice to the good things provided, for a six-hours' ride over a very rough country gave us the customary appetite of hunters. The usual *siesta* followed, and then a consultation as to the morrow. Our host kindly offered to slaughter an old mare as bait, and having decided to kill the animal that night, we proceeded to rub over the carcase the twenty pounds of salt brought with us for that purpose. The object of this is to quicken the digestion of the Condor, so that it may not be able to disgorge its meal, which it invariably does when disturbed at feeding-time—no doubt to diminish its specific gravity and give it a chance of rising more speedily from the ground. Having made all necessary arrangements for the anticipated morrow, we retired to the shady orchard, regaling ourselves on the ripe fruit, and about dusk re-entered the house for a dance until 10 P. M., when a late dinner was served, the *piece de résistance* of which was roast kid. Amongst the dishes common on the Sierras may be mentioned stewed owls, parrots, wheat soup, &c., all of which, if not to taste of the epicure, form welcome additions to the *carte* of the traveller. Thoroughly tired, and yet with fevered pulse, we now sought the downy pillow; two moments sufficed to woo the fickle god, who prolonged our sleep till cockcrow. Springing from our couches at this signal, we despatched a peon to reconnoitre, but no condors were yet visible; in fact, this gluttonous vulture, like its human congeners, is a very late riser.

After the despatch of two or three other messengers, we had the satisfaction of learning, about 9 A. M., that the Condors were arriving. In fact, we had no need of messengers; these *Sarcorhampi* announced themselves from every quarter of the horizon, looming up in successive lines. And now all was hurry and confusion, saddling, coiling lassos, &c., for when once the Condors make their appearance very little grace is allowed, and less than half an hour suffices to leave only the bones of an ox or horse. In about ten minutes we were ready to start, our party consisting of Don Palemon Carranza, Don Enrique Cooke and myself, with four peons all well mounted and armed with lassos and bolas, but badly off for fire-arms. The field of battle was not far distant and was well-chosen, the bait having been placed on the gentle declivity of a grassy hill free from stones, whose summit shielded our approach from view. Reaching the brow, we put spurs to our horses and and charged right down upon the Condors. Imagine the scene of confusion that then ensued at the banquet table, when more than fifty magnificent Condors flapped their huge wings and endeavoured to rise. I had only just time to throw myself off my horse, when the Condors flew past, and letting fly with my three solitary bullets, without taking steady aim, was mortified to find that their wing-feathers alone were struck, which did not stop their progress. As the birds flew over us, there was a perfect hail of meat around us, disgorged by them to accelerate their flight.

Suddenly a loud shout of "Viva!" was heard, and looking round I perceived a fine Condor struggling on the ground, lassoed by one of the peons. One other was lassoed by our host, but it managed to slip the knot, and so escaped. Don Palemon had no better luck with his fowling-piece than I with my rifle, firing two shots without effect, although a small boy standing by remarked that one Condor was hit in the eye, and certainly a drop of something—most likely a Condor's parting tear—fell at Don Palemon's feet.

Our capture was a male bird of medium size, but in very good condition, measuring over ten feet across the wings. Some of the Condors having settled on a neighbouring eminence, one or two of us gave chase, Don Enrique firing two unsuccessful shots, and I—in very vexation at not having a better weapon—amused the game by using my revolver. All the Condors had now taken to flight, circling high above our heads, of course awaiting our departure to continue their meal, and as all chance of further sport on that day had vanished, we wisely returned homewards to dinner.

Time did not permit us to extend the programme, as intended, to the sacking of Condors' nests—a difficult and dangerous feat. About a league distant stands a precipice, on a ledge of which, 200 feet deep, the Condors love to build, and to reach this a rope is suspended dangling in the air, and if the old birds return during the burglarious attempt, woe to the daring hunter! The universal testimony is that the Condor lays but one egg.

I managed to construct a leather hood for the captured Condor, and, having tied his legs and wings, deposited him safely in one of the panniers; and then, all being ready, we bade adieu to the kind family where we had been so hospitably entertained for two days. Our host serving as guide, our descent was rapid. Passing round the crest of a hill, three Condors were espied, evidently about to attack a calf grazing with a few head of cattle in the hollow beneath us. Now the Condors are notoriously inquisitive, and one of them sailing up to interview us, got into trouble, for Don Enrique, who was carrying the fowling-piece loaded with swan-shot, jumped off his horse, and brought down the bird with thundering rush at our feet. The other pannier was now loaded, and off we trudged to another brow, when our host left us, giving us special directions as to the road to be followed.

Condor-hunters are especially welcomed to the Sierras, as the birds commit great havoc amongst the herds. They will attack a calf four or five months old, and in a few minutes nothing is left of it but the skeleton. Waiting till the mother is at some distance, they swoop down and strike the animal to the ground, immediately ripping out its tongue that it may give no signal of alarm.

Our homeward descent was continued without any other adventure save losing one of our companions in the woods. Our whistles were used continually without success for an hour, and then, by sheer accident, he again crossed our path, having been riding in every direction, misled by the notes of a bird, strongly resembling the sound of a whistle.

We made a short halt, for *maté* and a *cigarillo*, at a *rancho*, the people in which, whilst expressing their delight at our successful hunt, wished to know whether we were going to use the Condors as a *remedio*, having no idea of the value or object of Natural History pursuits—in fact, considering a naturalist as a species of quack doctor who collects animals in order to procure wonderful *remedios*. In these Sierras a *remedio* is the usual form for begging. The other evening an old woman at Cosquin begged for a piece of candle as a *remedio*—certainly a perfect cure for darkness.

At sundown we arrived safely at our journey's end, a little fatigued, but thoroughly well pleased with this our first Condor-hunt on the Sierras of Cordoba.

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THE LAND AND FRESHWATER MOLLUSCA OF SUSSEX.

By the Editor.

(Concluded from p. 126.)

II. AQUATIC MOLLUSCA.

BIVALVES (*CONCHIFERA*).

Order Lamellibranchiata.*

Fam. Sphæriidæ.

Sphærium† *corneum.* The Horn-coloured Sphærium.—Generally distributed and common in ponds, ditches and slow streams. The only species of the genus at present identified at Ratham, Chichester (J) and Eastbourne (G).

Sphærium rivicola. The Brook-haunting Sphærium.—Mr. Borrer, writing under date 4th December, 1877, says:—"A brother of mine has to-day shown me some specimens of *Cyclas rivicola*, which he collected from the *rejectamenta* of the floods of the Arun, at Burpham, near Arundel. I never met with it myself, although I should quite have expected it, as the Arun and the Wey are connected by a canal, and the shell is abundant in the Wey, at all events about Guildford." This species is not included in any other of the Sussex lists.

Sphærium lacustre. The Lake-dwelling Sphærium.—This shell may be found in abundance in the Great Pond at Harting, near Petersfield, and in the streams issuing from it.—W. It occurs also in ponds at Cowfold (B), and is included in a list of Mollusca from the vicinity of Brighton (M). Although not mentioned in any other of the Sussex lists, it is probably generally distributed, and has been either overlooked, or perhaps, when encrusted with mud, confounded with some other species.

The Rev. Leonard Jenyns, who has paid much attention to this group of freshwater bivalves, published a monograph of the British species, which will be found in the 'Transactions of the Cambridge Philosophical Society' for 1832, and is full of valuable and interesting information. Some curious details of the habits of *Sphærium lacustre*, communicated by Dr. Lukis, of Guernsey, are given by Mr. Gwyn Jeffreys, in his 'British Conchology' (vol. i., pp. 12—15).

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* Having leaf-like gills.

† By many conchologists the name *Cyclas* is retained for this genus.

Pisidium amnicum. The River Pea-shell.—Formerly the species of this genus were all classed with *Sphærium*, but, independently of their smaller size, they differ in the shape of their shells, which are not equilateral,—that is, the beak is situated near the shorter end,—and in having but one contractile tube or syphon, instead of two. The name *Pisidium* was bestowed from the gregarious habits of the species, individuals of which may often be found in considerable quantities, scattered about *like peas*. *Pisidium amnicum* is by no means uncommon in rivers and gently running streams, residing wholly at the bottom, and partly buried in the mud. In the parish of Harting it is widely distributed along the water-courses traversing the Down Park and the Nyewood meadows.—W. In the neighbourhood of Lewes, however, Mr. Unwin considers it somewhat rare, although he has found it in the Cut, and in the streams which empty themselves into the Ouse. In the vicinity of Brighton, also, it is not considered common.—M.

Pisidium fontinale. The Stream Pea-shell.—Mr. Gwyn Jeffreys has described four varieties of this species, which have been catalogued by some conchologists as specifically distinct, under the names *Henslowianum*, *pulchellum*, *pallidum* and *cinereum*. Mr. Unwin has entered it in his Lewes list of Mollusca, under the name *Henslowianum*, and remarks that he has only met with two specimens. In the Brighton list it is included as *P. pulchellum* and marked "rare." Mr. Weaver has catalogued it, under the name *cinereum*, as a species inhabiting the streams in the East Harting district. It is reported to occur, also, in the vicinity of Eastbourne.—G.

Pisidium pusillum. The Little Pea-shell.—In ditches in the levels of the Arun and the Adur, and in ponds at Cowfold amongst *Lemna minor*.—B. Occasionally amongst freshwater *Algæ*, with other minute species, in the vicinity of Lewes.—U. Under the name *obtusale*, Mr. Weaver has recorded it as tolerably plentiful in the parish of Harting in a shallow water-course in a meadow known as Pannell's Hole, and Mr. W. Jeffery reports that it is found at Burton, near Petworth. It is recorded with doubt as occurring at Eastbourne (G), and noted as rare in the neighbourhood of Brighton (M).

Pisidium nitidum. The Glossy Pea-shell.—In ditches at Henfield, Lewes and Eastbourne.—B.

Fam. UNIONIDÆ.

Unio pictorum. The Painter's Mussel.—Generally distributed in ponds and streams. Common in the Cut near Lewes, and in the Ouse occasionally; varying very much in appearance, specimens in the Ouse being much darker, and having an extraneous coat, evidently from some matter with which the water is impregnated.—U. Mr. W. Jeffery reports its occurrence at Burton, near Petworth. It is somewhat singular that none of the Sussex lists include the allied species, *Unio tumidus*, which is very generally distributed throughout the country, and sometimes occurs in company with *pictorum*. In the parish of Harting neither of these two species has been met with.

Anodonta cygnea. The Swan Mussel.—Common in ponds and pools, in the mud of which it may be found deeply sunk, with the posterior end only of the shell, where the respiratory syphon is situated, above the surface. Some unusally large specimens of this mussel have been taken out of the Vicarage Pond at Cowfold, near Horsham. One of these, now before me, measures seven inches by three inches and a half. This is much above the average size; but some years ago several were taken out of a decoy pond in Firle Park, Sussex, measuring eight inches in length and nine in circumference.*

It would be proper to introduce here the family *Dreissenidæ*, in order to notice the Zebra Mussel, *Dreissena polymorpha*, which is generally distributed in our navigable rivers; but none of the Sussex conchologists make mention of it in their lists, and for the present therefore it remains excluded from the freshwater Mollusca of that county.

UNIVALVES (*GASTEROPODA*).

Order PECTINIBRANCHIATA.†

Fam. NERITIDÆ.

Neritina fluviatilis. The River Neritina.‡—Usually found on a stony or gravelly bed in slow rivers, streams and lakes, into which water flows. Specimens, however, have been procured from mud thrown out of a ditch in the level of the Arun between Burpham and Arundel.—B. It may sometimes be found on the submerged leaves of the yellow water lily, *Nuphar lutea.* This is the only freshwater species of the genus to be found in this country, although there are several marine forms which are also met with in brackish water.

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* Merrifield, 'Nat. Hist. Brighton,' p. 155.

† Having comb-like gills.

‡ *Neritina* is a diminutive of *Nerita*, the ancient name of a sea-shell.

Fam. PALUDINIDÆ.

Paludina vivipara. Common Marsh-shell.—Occurs in the Arun.—B. I cannot help thinking that I have observed it in the ditches of the Pevensey level, and in the marsh-drains between Siddlesham and Selsea; but I have traversed so many marshes in different parts of the country that I may be mistaken as to these particular localities. I remember to have noticed this shell as common enough in some of the fen dykes of Cambridgeshire. Mr. W. Jeffery has recently informed me that *Paludina vivipara* occurs at Wisboro' Green, and that during the summer of 1877 he found it plentifully in a small stream which supplies a portion of the Wey and Arun Canal.—H.

Bythinia tentaculata. The Tentacled Bythinia.—Mr. Gwyn Jeffreys has pointed out that, although the derivation of the word *Bythinia* would imply that these mollusks inhabit deeper water than others of the same family, such is not the case. They generally frequent small streams, canals, shallow ponds and ditches, where they lay their eggs in three long rows on stones, as well as on the stalks and leaves of water-plants. In appearance the shell is not unlike a miniature *Paludina*, but the animal is oviparous instead of ovo-viviparous, and sessile-eyed instead of stalk-eyed. It is abundant in still stagnant ditches in the levels of all the Sussex rivers.

Bythinia Leachii. Leach's Bythinia.—Of rarer occurrence. Has been met with in a few of the ditches of Henfield level, and at Eastbourne.—B. Mr. Unwin includes it under the name *ventricosa*, Gray, as occurring at Lewes in ditches by the side of Kingston Road.

Fam. VALVATIDÆ.

Valvata piscinalis. Common Valve-shell.—In the ditches of Henfield level and at Eastbourne.—B. Very common in ditches about Lewes.—U. Abundant in the neighbourhood of Harting.—W. Common also in the vicinity of Brighton.—M.

Valvata cristata. The Crested Valve-shell.—In weedy ditches at Eastbourne, and in a pond at Old Dean Farm, Henfield, on the dead stalks of the weeds.—B.

Order PULMONOBRANCHIATA.*

Fam. LIMNÆIDÆ.

Planorbis corneus. The Horny Coil-shell.—Abundant in stagnant ditches in the levels of the Arun, Adur, Ouze, and Cuckmere rivers.—B. In the ditches at Malling, and very fine in ditches on Pevensey level.—U. Mr. W. Jeffery remarked it in great numbers in the mud thrown out of a "rithe" some years ago at Bersted.

Planorbis albus. The White Coil-shell.—Common in ponds on the clay, but not found in those of the sand or chalk.—B. Mr. W. Jeffery has found it in the stream at Ratham.

Planorbis glaber. The Smooth Coil-shell.—"I have only found this species in a small pond in my own grounds at Cowfold."—B.

Planorbis nautileus. The Nautilus Coil-shell.—At Ratham and Wisboro' Green.—J. Under the synonym *imbricatus*, Mr. Unwin includes this species in his list of Mollusca in the vicinity of Lewes. He describes it as "rare on *Callitriche verna* in a ditch near the Ouse." It is included, under the same name, in the Brighton list without any comment. Mr. Borrer names it *Planorbis cristatus*, and notes it as occurring in a shallow pond at Cowfold, and in some of the ditches in the level of the Adur at Henfield.

Planorbis carinatus. The Keeled Coil-shell.—Common in the levels of the Arun and the Adur, in weedy ditches and occasionally in ponds.

Planorbis complanatus, vel *marginatus.* The Flattened Coil-shell.—Found in similar situations to the last-named, and much commoner. Occurs in all the ponds and water-courses about Harting.—W.

Planorbis vortex. The Whorled Coil-shell.—Common in stagnant weedy ponds.

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* Having lung-like gills.

Planorbis spinorbis. The Round-spired Coil-shell.—In clear springs and springy ditches. Less abundant than the last.

Planorbis contortus. The Twisted Coil-shell.—In the ditches of all the Sussex rivers, and occasionally in very weedy ponds.

Planorbis fontanus. The Shining Coil-shell.—Sparingly in clear water, at Cowfold and Henfield, amongst *Callitriche verna* (B), and in the Mill-stream at Ratham (J).

Planorbis nitidus. The Streaked Coil-shell.—In a ditch near the ruins of the Priory at Lewes, and in a pond at Old Deane Farm, Henfield.—B. Mr. Unwin has met with it in a ditch in Kingston brooks, near Lewes, adhering to *Confervæ.* He has found it a good plan to drag out a quantity of the *Confervæ*, and on reaching home to place it in a basin and pour warm water upon it. The animals at once relinquish their hold and fall to the bottom, when they may be easily collected. Mr. Borrer, in a recent letter, has pointed out that *Segmentina lineata*, Fleming, of Mr. Unwin's list is referable to the present species, *Planorbis nitidus* Müller, and not to *Acme lineata*, Draparnaud, as stated *ante* p. 126. It would seem, therefore, that Mr. Unwin has given the same species twice under different names. Mr. Weaver has seen specimens of this shell said to have been collected in the parish of Harting, but has not found it there himself.

Physa fontinalis. The Stream Bubble-shell.—May be found in water-cress and other aquatic plants in streams and canals, and is everywhere tolerably common. It occurs in most of the ditches of the before-mentioned levels.

Physa hypnorum. The Slender Bubble-shell.—Is rather more local, affecting ponds, ditches, and rank grass in dried-up pools. Mr. W. Jeffery has noted it at Ratham, near Chichester, and at Lindfield. Both these species are gregarious, and may be recognized at once by the polished appearance of their shells, the surface of which, being more or less enveloped by an expansion of the mantle, is kept bright by the lubricating friction which it undergoes. The characters by which *fontinalis* may be distinguished from *hypnorum* are the oval instead of oblong shell, larger and wider mouth, smaller number of whorls (that is, four or five, instead of six or seven), shorter spire, and deeper suture. The foot of the animal in *fontinalis* is rounded in front instead of lanceolate, and the body is of a uniform greyish colour, instead of being minutely speckled as in *hypnorum*. Gray considered these two generically distinct, and placed the latter in the genus *Aplexus*, pointing out that in *hypnorum* the mantle has plain edges, and is not expanded over the shell, which has a long spire and an epidermis; while in *fontinalis* the mantle is lobed, expanding over the shell, which has a short spire and no epidermis. In regarding these differences as specific and not generic, we have followed Turton, Forbes and Hanley, Gwyn Jeffreys and other authorities.

Limnæa peregra. The Wandering Mud-shell.—Common in ponds and ditches.

Limnæa stagnalis. The Pond Mud-shell.—Abundant everywhere in ponds and stagnant ditches.

Limnæa auricularia. The Ear-shaped Mud-shell.—In similar situations, but much less common.

Limnæa palustris. The Marsh Mud-shell.—Generally distributed, and not uncommon in the marsh dykes, and here and there in stagnant water.

Limnæa truncatula. The Truncate Mud-shell.—In shallow ditches; fond of crawling on the half-dried mud at the sides.—B. Mr. Unwin has found it on the mud principally by the side of the Cut near Landport, where it is rather plentiful. This is the only locality, however, in which he has met with it. Mr. Weaver has noted it as a rare species in the neighbourhood of Harting. At Ratham, near Chichester, Mr. W. Jeffery has found it plentiful, as also at Lindfield.

Limnæa glabra. The Smooth Mud-shell.—Very local. In narrow grassy ditches at Albourne, Cowfold, and Henfield.—B. In a ditch near Malling.—U. Rare in the vicinity of Brighton.—M.

Ancylus fluviatilis. The River Limpet.—On and under stones in the shallow parts of running water, and may be found sometimes on the under side of the submerged leaves of the yellow water lily, *Nuphar lutea*.

Ancylus lacustris, vel *oblongus*. The Lake Limpet.—Not so common as the last named. Mr. Borrer has found it at Cowfold adhering to shells of *Limnæa auricularia*, and at Henfield and Albourne on the under sides of the leaves of *Nymphæa alba* and *Nuphar lutea*. Recorded as occurring in the vicinity of Lewes (U), and in the neighbourhood of Brighton (M). These so-called freshwater Limpets furnish another illustration of the fact that both salt and fresh waters have their respective representative forms.

Before concluding, it may be well to remark that the nomenclature adopted by Mr. Borrer is that of Lovell Reeve's 'Land and Freshwater Mollusks of the British Islands.' Mr. W. Jeffery and Mr. Unwin follow Gray's edition of Turton's 'Manual.' Mr. Weaver and the authors of the Brighton and Eastbourne Lists do not specify any particular text-books. As already observed, the systematic arrangement adopted in the present Catalogue is that of Mr. Gwyn Jeffreys, as published in the first volume of his 'British Conchology.'

ERRATUM.—*Clausilia biplicata* should be erased from the present Catalogue. It appears on investigation that at present there is no good reason for including it amongst the land-shells of Sussex.

THE MAMMALS OF SHAKSPEARE.

By HENRY REEKS, F.L.S., F.Z.S.

(Continued from p. 118.)

THE HEDGEHOG, *Erinaceus Europæus*.

Although the Hedgehog is undoubtedly a destroyer of the eggs of poultry and game birds, and probably the young also, if we may believe the apparently conclusive evidence which has been published at various times in 'The Zoologist,' 'The Field,' and elsewhere, yet it has many redeeming qualities. As a destroyer of cockroaches, snails, and other "vermin," it certainly, in my opinion, has no equal, and should therefore be considered an especial friend by all who possess a walled-in garden or a kitchen infested with cockroaches.

Hedgehogs may be easily tamed, and will feed readily on almost any animal food, besides bread and milk. They will also destroy snakes and adders. There is a widespread belief that they are innocuous to all known poisons. How far this may be true I am unable to say; but perhaps some of the more scientific readers of 'The Zoologist' may have experimentalized, and can enlighten us.

As an article of food, the Hedgehog, when properly dressed, is said to be very good eating, tasting something like a rabbit. The old belief in cows being suckled by Hedgehogs is now pretty well exploded, even among the most ignorant. In some out-of-the-way places, where it is difficult to get properly constructed muzzles for weaning calves, I have heard of the skin of an Hedgehog being used to answer the same purpose by tying it round the nose-band of the calf.

> "* * * Like *Hedgehogs*, which
> Lie tumbling in my barefoot way, and mount
> Their pricks at my footfall," &c.
> *Tempest.* Act ii., Scene 2.

Again:—

> 1st Fairy. "You spotted snake, with double tongue,
> Thorny *Hedgehogs*, be not seen:
> Newts and blindworms, do no wrong:
> Come not near our fairy queen."
> *Midsummer Night's Dream.* Act ii., Scene 3.

In *King Richard III.*. Act i., Scene 2, the word *Hedgehog* is used as an epithet.

Shakspeare appears to have been well versed in the vernacular names of our indigenous wild animals; for, besides the usual name of *Hedge-hog*, the animal is locally called *Hedge-pig* and *Urchin*, with both of which names Shakspeare was familiar, as the following quotations will show:—

> 1st Witch. "Thrice the brindled cat hath mew'd."
> 2nd Witch. "Thrice; and once the *Hedge-pig* whin'd."
> *Macbeth.* Act iv., Scene 1.

> "And when they showed me this abhorrèd pit,
> They told me, here, at dead time of the night,
> A thousand fiends, a thousand hissing snakes,
> Ten thousand swelling toads, as many *urchins*,
> Would make such fearful and confusèd cries
> As any mortal body, hearing it,
> Should straight fall mad, or else die suddenly."
> *Titus Andronicus.* Act ii., Scene 3.

Shakspeare also makes use of the word *urchin* as an adjective when he speaks of a "grim and *urchin*-snouted boar" (*Venus and Adonis*, stanza 185).

THE MOLE, *Talpa Europæa*.

We now come to one of the most useful, though one of the most persecuted, of British mammals—"The blind Mole," which "casts copp'd hills towards heaven" (*Pericles*, Act i., Scene 1).

When will occupiers of land learn to know that the beautiful verdure of their parks and pastures is mainly preserved by Moles, whose chief food consists of the larvæ of Coleopterous and Lepidopterous insects, besides worms and slugs. The hillocks, which to many appear so unsightly, should never remain long enough for the grass to go through them. No artificial manure, costing, say, ten times as much as the labour of spreading the fresh hillocks evenly over the grass, will produce anything like so good a crop of grass. I have tried it for years, and can speak from experience. Besides it should be borne in mind that the most expensive top-dressings will not destroy the insect enemy at work at the roots of the grass, even if applied thick enough to kill the grass itself! Surely, then, it is far better and far more economical to manure the ground with the hillocks themselves.

Shakspeare was well acquainted with the acute sense of hearing in the Mole. He makes Caliban say—

> "Pray you, tread softly that the blind *Mole* may not
> Hear a footfall: we are now near his cell."
> *Tempest*. Act iv., Scene 1.

In the first part of *Henry IV*. (Act iii., Scene 1), Hotspur complains—

> "He angers me
> With telling me of the *moldwarp* and the ant;
> Of the dreamer Merlin and his prophecies," &c.

As an epithet the name "Mole" was well applied by Hamlet to the ghost of his father—

> "Well said, old *Mole!* can'st work in the earth so fast?
> A worthy pioneer!"
> *Hamlet*. Act i., Scene 1

The belief that the Mole is unable to see is wide-spread and ancient. Autolycus, in *A Winter's Tale* (Act iv., Scene 3), says—"I will bring these two Moles, these blind ones, aboard him."

THE LION, *Felis leo.*

As may be supposed such a poet and naturalist as Shakspeare has not failed to pay due respect to the "king of beasts," and to avail himself, in his descriptions, of the many attributes of the noble animal. The Lion is mentioned by him upwards of a hundred and twenty times, or about twice as often as any other animal. In the limited space at disposal it would of course be impossible, even if it were desirable, to quote half of them; but a few of the more notable instances may be given as specimens. He has well pictured the

"O'ergrown Lion in a cave
That goes not out to prey."
Measure for Measure. Act i., Scene 4.

and the attitude of the Lioness that

"Lay crouching, head on ground, with cat-like watch."
As You Like It. Act iv., Scene 3.

The animal's terrific roar is often referred to:—

"'Twas a din to fright a monster's ear,
To make an earthquake! sure it was the roar
Of a whole herd of Lions."
Tempest. Act ii., Scene 2.

The question which Shakspeare puts into the mouth of Petrucio—

"Have I not in my time heard Lions roar?"

he could probably have answered himself in the affirmative, leaving it to be inferred that the roar proceeded from behind the strong iron bars of some showman's cage.

"Small curs are not regarded when they grin;
But great men tremble when the Lion roars."
Henry VI. Part II. Act iii., Scene 1.

Readers of the plays will well remember the humourous allusions to the Lion in *Midsummer Night's Dream*, in the amusing comedy which was got up in honour of the marriage of Theseus with Hippolyta.

THE TIGER, *Felis tigris.*

The Tiger is mentioned a score of times throughout the plays, but a couple of references, perhaps, will here suffice:—

> * * * "The mild hind
> Makes speed to catch the *Tiger:* bootless speed,
> When cowardice pursues, and valour flies."
> *Midsummer Night's Dream.* Act ii., Scene 2.

Menenius, in recounting the evil qualities of Marcius, says:—

> "I paint him in the character. Mark what mercy his mother shall bring from him: there is no more mercy in him than in a male *Tiger.*"
> *Coriolanus.* Act v., Scene 4.

THE LEOPARD, *Felis leopardus.*

The Leopard, sometimes called "Pard," is mentioned about half-a-dozen times. See *Richard II.*, Act i., Scene 1; *Henry VI.*, First Part, Act i., Scene 5; *Timon of Athens*, Act iv., Scene 3; *Midsummer Night's Dream*, Act ii., Scene 2; *Love's Labour Lost*, Act v., Scene 2; and *The Tempest*, Act iv., Scene 1.

"Lubbar" is probably a corruption of "Libbard," an old name for Leopard. We find Falstaff "indited to dinner to the *Lubbar's* Head, in Lumbert Street, to Master Smooth's, the silkman" (*Henry IV.*, 2nd Part, Act ii., Scene 1). The arms of the Weaver's Company being a chevron between three leopards' heads would account for "Master Smooth, the silkman," adopting a leopard's head as a "sign."

Under the name of "Panther," the Leopard is mentioned three times in the play of *Titus Andronicus.* See Act i., Scene 2, Act ii., Scene 2; and again

> "Come on, my lords, the better foot before
> Straight will I bring you to the loathsome pit,
> Where I espied the *Panther* fast asleep."
> *Id.* Act ii., Scene 4.

THE OUNCE, *Felis uncia.*

Mentioned once in the charm uttered by Oberon when, squeezing the juice of a flower on Titania's eyelids as she sleeps, he says—

> "What thou seest when thou dost wake
> Do it for thy true love take;
> Love, and languish for his sake:
> Be it *Ounce*, or Cat, or Bear,
> Pard, or Boar with bristled hair,
> In thy eye that shall appear
> When thou wak'st, it is thy dear.
> Wake when some vile thing is near."

(To be continued.)

* * *

ORNITHOLOGICAL NOTES FROM THE MOY ESTUARY.

By Robert Warren.

Owing to the unusual mildness of the past winter, but few rare birds from the north visited this neighbourhood, and some of our regular winter visitors appeared in much smaller numbers than usual.

Lapwings were the only birds I remarked in larger numbers than in previous years; they commenced assembling on the sands in August, and by the first week in September the flocks were largely increased. By the 1st October the largest number of Lapwings were to be seen on the sands that I ever remember to have observed. Some of these flocks evidently consisted of home-bred birds, but the greater part must have been strangers. The increase in the number of home-bred birds is easily to be accounted for, by the unusually wet spring and summer, rain having fallen on 270 days in the year **1877**; the great excess of moisture proving favourable to the increase of the Lapwings' natural food, and thus enabling them to rear their broods with greater ease than in a dry season, when many young birds must perish from want of both food and water.

Woodcocks and Snipe are much scarcer than usual, the former remarkably so. Indeed all the shooters of my acquaintance complained loudly of the shooting season of 1877-78; and their annoyance was much aggravated by the early closing of the season, on the 15th February, by the 'Wild Fowl Preservation Act.'

Although a few Wigeon appeared on the 9th October they only remained for a day or two, and I did not see any others until the 29th of that month. The main flight did not arrive until November, when they appeared in their usual numbers, and I perceived no scarcity of birds throughout the winter. Last season I noticed Wigeon remaining about the estuary and river up to the 20th April; but this spring they appear to have taken their departure a fortnight earlier, none being observed since April 6th.

Wild Ducks visited the bay and estuary in much smaller numbers this winter than usual, and many large flocks seen at early morning moving from their inland feeding-grounds, to pass the day on the quiet waters of the bay, were not observed on flight this season.

Pintails were also very scarce, only two or three having been observed throughout the winter, although parties of eight or ten are usually seen associating with the wigeon. Neither Long-tailed Ducks nor Pochards were observed in the bay or estuary this season, though on the 23rd April, 1875, I saw a pair of the first-named ducks near Killala, and shot the female.

The Scaup, so common in some parts of Ireland, is a rare visitor to the Moy Estuary. I shot a young male on the 23rd October; it showed no indications of assuming the adult plumage, save an odd green feather showing here and there on the head. This bird was the smallest specimen of the Scaup I ever shot, being only seventeen inches in length. I came across a duck of this species a few days after, and on the 3rd November a little party of three fine old males.

Sheldrakes, I am happy to say, are increasing in numbers, owing to the protection afforded them in their breeding haunts by Captain Kirkwood, of Bartragh. Ten fine birds haunted the sands throughout the winter, and there is now every probability that several pairs will nest this summer in the sandy rabbit-burrows of that island.

Great Northern Divers appeared as usual, and none of their favourite stations were unoccupied this winter. Red-throated

Divers were very scarce, three birds being the greatest number I saw on any day when out in my punt; indeed, since I commenced punt-shooting I never remember these birds so scarce in this neighbourhood.

Wild Geese appeared in their usual numbers this winter, and on the 13th April I saw a great many resting in the meadows along the Moy near Foxford, their usual haunts. When passing near the railway, I remarked some birds within a hundred and fifty or two hundred yards of the train, and, as well as I could judge, they were White-fronted Geese—the commonest inland-feeding geese we have.

Wild Swans did not come under my observation this winter, nor did I notice their whooping call, so often heard when the birds pass over this locality on their way to the mountain loughs in Erris.

On the 21st December, when at Bartragh, I saw either an Iceland or Glaucous Gull flying over the Enniscrone sand-hills; and on the 26th, when walking near Killanly Marsh, I observed a young Iceland Gull, in company with a young Herring Gull, sitting on the water about forty yards from the shore. The Iceland bird seemed to be in the second year's plumage—at least it was in that creamy-looking stage that appears to me to indicate the second year. On the 29th December, being anxious to obtain some Purple Sandpipers for a friend's collection, I visited a favourite haunt of theirs on the coast, about two miles below Enniscrone, and when about half-way down I observed a young Iceland Gull flying about a grass-field in which a flock of Common Gulls were resting; but, as it did not come within shot, I went on to the Sandpipers' haunt, and having obtained a few specimens I set out on my return, and when again passing by the field in which I had seen the Iceland Gull in the morning, I was agreeably surprised to find it there still. It flew out over the shore, and wheeling round within shot gave me a chance, which I took advantage of and brought it down. It proved to be an immature bird in the first year's plumage, and was the same I had seen in the morning, for a broken feather in the wing enabled me easily to identify it.

On the 17th January, when returning from Bartragh in my punt, I observed a young Black-backed Gull on the rocks near Scurmore, feeding on some garbage left by the tide. Shortly after, a young Glaucous Gull, passing by, and seeing it feeding, wheeled round to join it, but the latter beat it off, and every time it attempted to feed it was driven away, until at length it flew off about two hundred yards to where a dead dog was lying at high-water mark, and began to feed on it so greedily that it took no notice of my punt until I had come close within shot, when, as it was making off, I knocked it over. It proved to be a full-grown specimen of the Glaucous Gull in the first year's plumage, and although quite as large and as strong-looking as the Black-backed Gull, yet it had not the courage to fight for its share of the food.

The weather had been wet and stormy during the greater part of January, but on the 24th it became very cold, with a heavy gale from the N.N.W., accompanied by violent hail-storms. About three o'clock on that day I was in the farm-yard, standing near the cattle-houses, when I observed a little bird flitting about a manure-heap, but as there were several tits and finches moving about I did not take much notice of it at first. After a time, however, it came quite close to me, and I then saw that it was either a Willow Wren or Chiffchaff, but its feathers being much puffed out from the effects of the cold I was unable to decide which. It remained about the heap until dark, attracted by the insects found there, as well as by the warmth. On the following day the weather had become colder, with snow lying on the ground, and as I was in the yard about the same hour I again perceived the little bird about the manure-heap, but evidently much weaker and suffering more from the cold, and as I was then able to get a closer view of it than on the first day I came to the conclusion that it was a Chiffchaff, as it appeared darker underneath than the Willow Wren is, and the call-note sounded harsher. This is the earliest date at which I have seen the Chiffchaff in this locality. Some years ago, at Castle Warren, Co. Cork, I remember seeing and hearing a Chiffchaff as early as February 18th and March 2nd, and as late as the 22nd November.

Being anxious to ascertain whether any of our winter visitors remained after the departure of the main flocks to their northern haunts, I took my punt round the estuary on the 6th April, and reconnoitred the wide expanse of sand extending from Scurmore to Killala. I found that the Wigeon had all left, as also the Knots, but I fell in with a flock of fifteen or twenty Gray Plovers, none of which showed any sign of assuming the black breast peculiar to the summer plumage. The greater part of the Godwits must have left, for I saw only one flock of about thirty birds. It is not unlikely that, before leaving, their numbers may be recruited by birds coming from the south; these rest in the bay for some days or weeks before proceeding to their northern breeding haunts. On the same day I saw about twenty Sanderlings, all of which were still in the winter plumage.

OCCASIONAL NOTES.

GOATS EATING YEW-LEAVES.—In his recently-published fourth edition of 'The Moor and the Loch,' Mr. Colquhoun speaks of the Goats on Crap-na-gower, "busily engaged in cropping the lower branches of a venerable yew" (vol. i., p. 91), "munching their delicious repast of yew-twigs" (p. 93), and other similar expressions, and describes a fine old Goat who "hanged himself by the horns on a yew-tree, in attempting to feed upon the higher branches" (p. 90). Is it then the fact that Goats can and do eat yew-leaves with impunity, while horses, cows and other animals are poisoned if they feed on them? Gilbert White, touching on this subject in his 'Antiquities of Selborne' (Letter V.), says:—" While mention is making of the bad effects of yew-berries, it may be proper to remind the unwary that the twigs and leaves of yew, though eaten in a very small quantity, are certain death to horses and cows, and that in a few minutes. A horse tied to a yew-hedge, or to a faggot-stack of dead yew, shall be found dead before the owner can be aware that any danger is at hand, and the writer has been several times a sorrowful witness to losses of this kind among his friends; and in the island of Ely had once the mortification to see nine young steers or bullocks of his own all lying dead in a heap from browsing a little on a hedge of yew in an old garden into which they had broken in snowy weather. Even the clippings of a yew-hedge have destroyed a whole dairy of cows when thrown inadvertently into a yard." Since this observation was made, a century ago,—and it was no discovery of White's,—the truth of it has been frequently verified. Two instances have come under my own observation. In one case several cows and heifers were poisoned from feeding on the leaves of a growing yew-tree, and in the other a valuable cow belonging to my father died from from the effects of eating some clippings of yew which the gardener had incautiously thrown down in a meadow, into which the cows were driven the same evening after milking time. Fortunately only one of them discovered the heap of leaves and twigs, or greater mischief might have ensued. "And yet," says Gilbert White, "sheep and turkeys, and, as park-keepers say, deer, will crop these trees with impunity." Are Goats, then, also exempt from any ill effects? Assuming that the Goats referred to by Mr. Colquhoun were feeding on the Irish yew, and not the common species (he does not say which it was), this seems to be equally poisonous, at least in the case of other animals. Pheasants have been poisoned with both (see 'The Field' of Nov. 25th and Dec. 2nd, 1876). This makes me doubt whether it can be possible that turkeys can eat yew with impunity, as stated by Gilbert White, not from his own observation, be it remarked, but apparently from hearsay only. If true, it is as remarkable a fact as that sheep, deer and goats suffer no ill effects, while cows and horses are invariably poisoned. How is this to be explained?—J. E. HARTING.

DIFFERENCE IN MODE OF ATTACKING TURNIPS BY RABBITS AND RATS.—Mr. Miller's note (p. 100) on the difference in the mode of feeding in the Rabbit and the Hare, I can neither confirm nor question, for Hares are scarce here; but I have always observed a marked difference in the method pursued by a Rabbit and a Rat when eating a turnip—a difference somewhat similar to that which Mr. Miller has noted in the case of the Rabbit and Hare. Rats and Rabbits prefer Swedish turnips to every other kind grown about here. If the turnip is growing, and portion of the bulb is still in the ground, a Rat generally eats all round the turnip, and leaves the centre for the last; whereas a Rabbit begins at the side and works right across to the other side. A Rat bites off the skin or rind and leaves it in little pellets around the bulb; a Rabbit eats skin and all. This I have noticed for twenty years, Rats and Rabbits being very common here. Thus one can readily know when Rats have been at work and when Rabbits have been the depredators. Rats very often leave a turnip half-eaten and go to another: but if they mean to finish the bulb they invariably conclude in the middle. The top falls over at last, with a truncated portion of the bulb attached. — RICHARD M. BARRINGTON (Fassaroe, Bray, Co. Wicklow).

NESTING HABITS OF THE KINGFISHER.—Kingfishers are amongst our early breeders. I have found their eggs on the 12th April; but from the 23rd to the 30th of that month is the best time to secure them in the Midland Counties, unless the season should be an unusually late one, in which case the first week in May will be a more likely time. They choose either a deserted Water Rat's or Sand Martin's hole, or, what is more usual, make one for themselves. It is generally from a yard to a yard and a half in length (sometimes less than a yard) and slopes upwards, probably for drainage. They generally select the banks of rivers or brooks. Small streams communicating either with ponds or rivers are very favourite places, and from the secluded haunts of which they sally out to fish. It is immaterial whether there are fish in the brook, so long as they can procure them in the neighbourhood. The nearest hole to the water I ever found them nesting in was one in the banks of the River Trent, only about three feet above the water. They generally prefer from five to twenty feet above it, and are fond of a bank overhanging it, and with trees about; this probably leaves the hole less open to observation, and accords more with their secluded habits. I once found a nest (so-called) in a gravel-pit a quarter of a mile from water, but as a rule they do not leave the banks bordering on that element. It is easy to anyone familiar with the habits and breeding-places of these beautiful birds to find their eggs. You may generally see by the droppings where the birds most frequently sit, and as this is generally near the hole selected, look about, and on discovering a hole take a little of the earth from the bottom of it in your fingers, and smell it. If they use it the strong smell of fish will soon make you aware of the fact, and you will probably see some bones with it. On getting your arm up, which you will probably fail to do without enlarging the entrance, you will discover more bones, and at the end you may find six or seven eggs, which before being blown look like pearls, from the yelk showing through the glossy and pure white shell. The eggs are almost round in form. Nest there is none; this I have long been quite sure about, and I remember once opening up a hole near the top of a bank till I got to the eggs, which are always placed on a mass of small bones which the bird has disgorged in a small depression scooped out for the purpose. Those naturalists who speak of their constructing a nest of intertwining bones together are quite mistaken. The bird may frequently be caught when sitting, and I have sometimes been startled by her sudden exit while preparing to insert my arm. They are very shy and wary on the approach of danger, leaving the nest very quietly, and only uttering their shrill loud pipe on getting some distance away. They breed twice in the season, I think, for I have found their eggs in July. They fly very quickly, generally keeping near the water. I have seen them a mile away from where I knew their nests to be, and occasionally in meadows some distance from streams or ponds. Severe winters kill them. I never found more than one pair inhabiting the same brook. In this respect they seem very solitary. You may see them with their young ones flying one after the other along a stream, or seated on a rail or tree feeding them; but as soon as the young birds can take care of themselves they separate. Kingfishers catch their prey by watching from a tree or rail and darting with great rapidity into the water, or by hovering like a Kestrel and then darting down, but generally by the former method.

On killing the fish they swallow it whole, and subsequently disgorge the bones. It is very interesting to watch them fishing. They are fond of certain trees and rails, where they sit motionless till an unhappy fish comes in sight, when, before you can speak, you see the fish in the bill so admirably adapted for taking, holding and killing it. They are very often unsuccessful in their attempts, and I have seen them go in six or seven times and only bring out one fish. In this rough sketch I have spoken of their not making any nest, and yet alluded to their nest. This apparent contradiction will be understood by all naturalists, and needs no apology.—Henry George Tomlinson (The Woodlands, Burton-on-Trent).

Crossbill Nesting in Sutherlandshire.—I have just returned from Sutherland, bringing with me a prize which has seldom gladdened the eyes of British ornithologists, viz., a nest of the Crossbill, with its full complement of five eggs. The nest was taken on Monday last, and my informant spoke very feelingly of the difficulty he had in laying hands on it even after discovering it. It was placed, he says, not in the fork formed by the branch springing from the stem of the spruce fir tree, but almost at the end or extremity of the branch itself! As the branch was too slight to bear the weight of any person going along it towards the nest, the only plan to obtain it was to bend back the branch very carefully, and so bring the nest within reach. The last Crossbill's nest I got was in March, 1874, and it had but four eggs.—Thomas Mackenzie (Aldie House, Tain).

Wood Pigeon Nesting near a House.—This spring, for the fourth consecutive season, a pair of Wood Pigeons have nested in trees on my lawn, within a few yards of the house. During the last winter the flocks of this species in the beech-hanger have been unusually large.—Thomas Bell (The Wakes, Selborne).

Land and Freshwater Mollusca of Sussex.—In May, 1868, I communicated to 'The Zoologist' a list of shells which I had noticed in West Sussex; and the perusal of your recent Catalogue of Sussex Mollusca prompts me to send you a note of the additions which I have made to my list since that date. They are the following:—

Paludina vivipara. Occurs at Wisboro' Green. I found it plentifully last summer in a small stream which supplies a portion of the Wey and Arun Canal with water (called there the "feed ditch"), and have no doubt that it occurs throughout the canal.

Helix arbustorum. Found this shell plentifully near Pulborough last August, when on an excursion of the Chichester and West Sussex Natural History Society.

Helix pulchella. Found at Ratham, and at Bersted, near Bognor.

Limnæus truncculatus. Have found this shell more plentifully about here since my report in 1868, and have also found it at Lindfield. It has a habit of following the flow of water during floods, and often gets left high and dry in summer, but appears capable of sustaining life so long as a little moisture is left.

Ancyclus fluviatilis. Common in our running streams.

Physa fontinalis. Generally distributed, but not plentiful.

Aplexus hypnorum. Have found this shell in one or two localities near here, and also at Lindfield.

Planorbis corneus. Found this shell in great numbers, some years ago, in the mud thrown out of a "rithe" at Bersted. Have never ascertained if it is to be found living there now, but have been told that there is a probability of its having been destroyed by an overflow of sea-water which occurred some time ago.

Planorbis vortex. Found in some stagnant pools.

Planorbis fontanus. Occurs in the mill-stream at Ratham.

Planorbis nautileus. Found at Ratham and also at Wisboro' Green.

Planorbis albus. In stream at Ratham.

Pisidium obtusale. At Burton, near Petworth.

Unio pictorum. At Burton.—WILLIAM JEFFERY (Ratham, Chichester).

[This note having reached us while the concluding portion of the "Catalogue of Sussex Mollusca" was passing through the press, we have been enabled to incorporate most of the above additions.—ED.]

PROCEEDINGS OF SCIENTIFIC SOCIETIES.

LINNEAN SOCIETY OF LONDON.

March 21, 1878.—W. CARRUTHERS, Esq., F.R.S., Vice-President, in the chair.

The following gentlemen were elected Fellows of the Society:—John Evans, Esq., F.R.S., Hemel Hempstead; C. P. Ogilvie, Esq., Leiston, Suffolk; Arthur Veitch, Esq., King's Road, Chelsea; and Sydney H. Vines, Esq., B.A., Christ's College, Cambridge.

On behalf of Mr. J. W. Clark, of Cambridge, some excellent mounted specimens of the male, female, and young of the Fur-bearing Seal of the North Pacific were exhibited. Mention was made of the "rookeries" of these creatures, containing over three million Seals in a compact area.

Like old Turks, a male dominates over a harem of a dozen or fifteen females, which he guards with jealous care, for two months or more never stirring from the spot, and meantime fights terrific battles for its maintenance. A neutral zone exists to the rear of the breeding-grounds, where the enforced bachelors and adolescent young of both sexes repair. These come and go continuously, passing to and fro through free lanes of passage. Others of these animals delight in dashing among the breakers on the surf, or in droves frolic and play on the sand and grassy dunes adjoining the more rocky ground of the "rookery." The method of shaving the fleshy side of the skin, thus cutting loose the roots of the long coarse hairs, and retaining the superficial fine fur of commerce, was explained, as also other interesting points in the economy and natural history of those animals. The value of the stuffed specimens of *Otaria ursina* which were exhibited may be inferred from the fact that that they are the only good examples of the species in any accessible Museum in Europe. The British Museum possesses only an old battered skin, while in St. Petersburg — rather an out-of-the-way spot for easy reference to naturalists—two specimens are said to exist.

In the absence of the author, the Secretary read the main points of a communication, by Mr. Benjamin Clarke, on "A New Arrangement of the Classes of Zoology," founded on the position of the oviducts, or, when these are absent, on the position of the ovaries, including a new mode of arranging the *Mammalia*. The principle of arrangement adopted is said to be in harmony with a system of classification of the phanerogamous plants previously proposed by the author. His present zoological arrangement he submits in a tabular form, adding a commentary on the various grouping adopted.

April 4, 1878.—W. Carruthers, Esq., F.R.S., Vice-President, in the chair.

The following gentlemen were balloted for and elected Fellows of the Society: — Frederick Manson Bailey, Esq., of Brisbane, Queensland; Dr. Archibald Hewan, Chester Square, S.W.; George Payne, jun., Esq., Sittingbourne; and James Robert Reid (Bengal Civil Service), Edinburgh.

The only zoological paper read at this meeting was "On some minute Hymenopterous Insects," by Prof. J. O. Westwood. He describes the following new forms:—*Mymar Taprobanicus, M. Wollastonii, Alaptus excisus, Oligosita subfasciata, O. Staniforthii, O. nodicornis*, and *Trichogramma* (*Aprobosca*) *erosicornis*. These singular insects, although of microscopic minuteness, possess considerable interest, not only from their peculiar structure, but also from their curious habits.—J. Murie.

ZOOLOGICAL SOCIETY OF LONDON.

April 2, 1878.—Prof. NEWTON, F.R.S., Vice-President, in the chair.

The Secretary read a report on the additions that had been made to the Society's Menagerie during the month of March, 1878, and called special attention to an Isabelline Bear (*Ursus isabellinus*, Horsf.), received in exchange from the Zoological Gardens, Calcutta; to a Le Vaillant's Darter (*Plotus Levaillanti*), new to the collection; and to two examples of the very singular Water Tortoise, of the Amazons, generally known as the Matamata (*Chelys matamata*), remarkable for the long pendent filaments on its neck.

A communication was read from the Marquis of Tweeddale, containing the seventh of his contributions to the ornithology of the Philippines. The present paper gave an account of the collection made by Mr. A. H. Everett in the Island of Panaon.

Mr. A. G. Butler read descriptions of new *Lepidoptera* of the group *Bombycites* in the collection of the British Museum.

A communication was read from M. E. Oustelet, containing the description of a new species of Cassowary, from New Guinea, proposed to be called *Casuarius Edwardsi.*

A communication was read from Mr. F. Nicholson, containing the description of an apparently new species of American Pipit from Peru, which he proposed to call *Anthus peruvianus.*

Professor A. H. Garrod read some notes on the placentation of *Hyomoschüs aquaticus* as observed in the pregnant uterus of a fresh specimen of this animal recently examined.

April 16, 1878.—E. W. H. HOLDSWORTH, Esq., F.Z.S., in the chair.

Mr. Sclater exhibited and made remarks on a typical specimen of the new Fox lately described by Mr. Blanford as *Vulpes canus*, from Baluchistan.

The Secretary exhibited, on behalf of Mr. A. Anderson, a bamboo stick with leather thong attached to it, such as is used in India for driving plough-cattle with, which had been taken out of a nest of the common Fish Eagle (*Haliaëtus leucoryphus*), in December, 1876.

Prof. Westwood communicated a memoir on the *Uraniidæ*, a family of Lepidopterous insects, with a synopsis of the family, and a monograph of one of the genera, *Coronidia*. These insects were remarkable for their extreme beauty and the difficulty which had attended their systematic classification. Their relations with other groups of Lepidopterous insects were discussed at considerable length, and their nearest affinities were shown to be with certain other moths belonging to the great division of the *Bombyces*, whilst their connection with the Hesperian butterflies, the Pseudo-sphinges, Erebideous *Noctuæ*, and Ourapterygeous *Geometræ* was disproved by their general structure, the venation of their wings and their transformations. A synopsis of the species of all the genera was given, and a complete monograph with figures of the genus *Coronidia*.

Mr. Gwyn Jeffreys read the first part of his work on the Mollusca, procured in the Expeditions of H.M.S. 'Lightning' and 'Porcupine.' It would be recollected that these Expeditions immediately preceded that of H.M.S. 'Challenger,' but were restricted to portions of the North Atlantic, including the Mediterranean. The Brachiopods formed the subject of the present paper. A Table of all the Brachiopods known to inhabit the European seas was given, comprising ten genera and twenty-two species, of which latter four were for the first time described and six figured. The Table also particularised the geological and bathymetrical range of all the species. Two plates accompanied the paper, and were furnished by Mr. Davidson.

Mr. G. E. Loder exhibited and made remarks on a mounted head of the Rocky Mountain Bison, remarkable for its soft, dark and long hair on the forehead. This specimen had been obtained near Denver, Colorado.

A communication was read from the Marquis of Tweeddale, containing the eighth of his contributions to the ornithology of the Philippines. The present paper gave an account of some Luzon birds in the Museum at Darmstadt, which had been sent to him for examination by Prof. Koch of that place.

A communication was read from Dr. O. Finsch, containing description of a new species of Finch from the Feejee Islands which he proposed to name *Amblynura Kleinschmidti* after Mr. Kleinschmidt, by whom it had been found in the interior of Viti-Levu.

Dr. M. Watson read a paper containing a description of the generative organs of the male spotted Hyena (*Hyæna crocuta*), and a detailed comparison of them with those of the female of the same animal.

Messrs. Sclater and Salvin read a report on the collection of Birds made during the voyage of H.M.S. 'Challenger' at the Island of Juan Fernandez, at various points along the coast of Patagonia and at the Falkland Islands.

A second paper by Messrs. Sclater and Salvin gave descriptions of three new species of birds from Ecuador, proposed to be called *Buarremon leucopis*, *Neomorphus radiolosus*, and *Aramides calopterus*.—P. L. Sclater, *Secretary*.

Entomological Society of London.

April 3, 1878.—H. W. Bates, F.L.S., F.Z.S., President, in the chair.

Donations to the Library were announced, and thanks voted to the donors.

Miss Eleanor A. Ormerod, of Dunster Lodge, Spring Grove, Isleworth, was ballotted for and elected a member.

Mr. McLachlan called attention, with reference to Mr. Mansel Weale's observations on *Termes trinervius* made at the last meeting of the Society, to a statement in Hagen's "Monographie der Termiten" ('Linnæa Entomologica,' xiv., p. 86), given on the authority of Osten-Sacken, respecting *Termes Rippertii* of Cuba, the soldiers of which species are said to exude a drop of clear liquid from the point of the head when handled. Mr. McLachlan said that it was interesting to find that Mr. Mansel Weale's observations had confirmed those formerly published.

Mr. F. Grut exhibited, on behalf of the Rev. T. A. Marshall, a collection of insects made by the latter in the Windward Islands, and read a letter which accompanied the collection.

Mr. F. Smith exhibited a series of specimens of a species of "Harvesting Ant," sent to Mr. Darwin from Florida, U.S., by Mrs. M. Treat. On comparison, the Ant appears to be identical with the species from Texas, *Myrmica barbata*, the *M. molifaciens* of Buckley. Three phials containing ants were sent, one containing specimens gradating from large soldiers to small workers, all having acutely dentate mandibles. A second phial contained ants varying in size, but all with mandibles having rounded teeth; in the specimens in the third phial the teeth were obsolete. Mrs. Treat's letter did not make it clear whether intermediate forms of teeth are to be found in nests, or whether it is to be understood that three distinct races exist in colonies, each being thus constituted for the performance of distinct functions. Mr. Smith stated that he had entered into correspondence with Mrs. Treat, and hoped shortly to obtain further information.

Mr. Alexander A. Berens exhibited a pair (male and female) of *Thestor Mauritanicus*, Staud., taken on the Atlas Mountains, in Algeria, in April.

Mr. M'Lachlan exhibited a coleopterous larva (probably a Buprestis or Longicorn) belonging to the tribe known as "coffee-borers," sent from Zanzibar by Dr. Kirk. He also exhibited a portion of a stem which had been bored into by the larva, and which was especially remarkable on account of the presence of a series of holes nearly equidistant, and bored in a direction perpendicular to the main gallery. These holes, which opened a communication between the inner gallery and the outer air, were of a conical shape, the inner opening being the widest, and Mr. M'Lachlan suggested that they were made by the insect for the purpose of ventilating the gallery.

Mr. Smith remarked that he had bred numbers of a Longicorn beetle (*Saperda populnea*), and had frequently observed in the shoots of the aspen, in which the insect undergoes its transformations, similar small holes, which in this case are made by a parasitic Hymenopterous insect.

Mr. W. C. Boyd exhibited a specimen of *Pterophorus lætus*, taken at Deal in June, 1869. He stated that the specimen agreed very closely with the continental *P. lætus*, as does another specimen taken at the same place by Mr. Purday in 1877, but that it differed from the species taken in Norfolk by Lord Walsingham (two specimens of which were exhibited for comparison), which had been returned by Prof. Zeller as being "probably *P. lætus*."

The Secretary read a paper, communicated by the Rev. T. A. Marshall, "Notes on the Entomology of the Windward Islands," in which the author gave a list of the species which he had captured in Barbadoes, Martinique, and Antigua since June, 1877, together with remarks on habits, and descriptions of new species.

The Rev. H. S. Gorham communicated "Descriptions of new Species of *Cleridæ*, with Notes on the Genera and Corrections of Synonymy."

Dr. D. Sharp communicated a paper "On some *Nitidulidæ* from the Hawaiian Islands."

The Secretary read a paper, by Mr. J. P. Mansel Weale, entitled "Notes on South African Insects," and exhibited drawings made by the author in illustration. The paper related to insects found on *Acacia horrida*, and protected by resemblances to various parts of that tree; species resembling birds' excrements, and also some remarkable cases of mimicry of ants by spiders of the genus *Salticus*, were likewise referred to.

Mr. Wood-Mason exhibited and made remarks upon the insects referred to in the foregoing paper, and supplied the names of the *Mantidæ* and *Phasmidæ*. He also suggested that the resemblance of a *Mantis* to bird-droppings might be of use to the insect for purely aggressive purposes, since flies were known to be attracted by such droppings. In conclusion, Mr. Wood-Mason mentioned a case of mimicry of ants by spiders which he had observed in India.

Mr. Meldola stated, with reference to the imitation of ants by spiders mentioned by Mr. Mansel Weale, that in his belief the remarkably interesting cases made known in the present paper could be better explained as instances of aggressive mimicry by the spiders for the purpose of obtaining food. There is no reason to suppose that the ants are themselves free from persecution by insect foes; thus it would be no advantage to the spiders to resemble them for mere protection. It is stated that the ants visit the trees for the purpose of feeding on the sweet secretions, and that large numbers of flies are attracted with the same object. Now the ants are not predatory on the flies, and can thus mingle with the latter without causing alarm. The spiders by mimicking the ants would thus be enabled to obtain an abundant supply of food, and, not being actually a foe to the ants, would be allowed to live with them on the friendly terms mentioned by the observer.

Mr. A. H. Swinton communicated a paper "On Display and Dances by Insects."

Mr. J. W. Slater communicated a paper "On the Secondary Sexual Characters of Insects."

Part V. of the 'Transactions' for 1877, containing index, title-page, &c., was on the table.—R. MELDOLA, *Hon. Sec.*

NOTICES OF NEW BOOKS.

The Rodents of North America. By ELLIOTT COUES and J. A. ALLEN; forming Vol. XI. of the Report of the United States Geological Survey of the Territories. F. V. HAYDEN, U.S. Geologist-in-charge. 4to, pp. 1100. Washington, 1877.

THE liberal aid which is given to Science by the Government of the United States affords an example which the Government of this country would do well to imitate. By defraying the cost of printing important scientific works, the limited sale for which might deter most publishers from undertaking their publication, the State confers an inestimable boon, not only on students, but on the whole scientific world at large.

The volume before us, which has been brought out under the auspices of the American Government, is one of the most important of the series that has yet appeared. It may be described as a very careful Monograph of the Rodents of North America, and from the well-known zoological ability of the authors it will assuredly form a text-book for all students of American Zoology.

A contemporary thus ably epitomises the contents:—"The classification adopted by the authors divides the order *Rodentia* into two well-known sub-orders, *Simplicidentati*, with two, and *Duplicidentati*, with four, incisor teeth in the upper jaw, the latter including the *Leporidæ*, or true Hares, and the *Lagomyidæ*, 'Pikas,' or Calling Hares, both of which families are treated by Dr. Allen. Of the nine families into which the much larger group of the *Simplicidentati* is divided, the *Muridæ*, *Zapodidæ*, *Saccomyidæ*, *Haplodontidæ*, and *Geomyidæ* are described by Dr. Coues; and the *Sciuridæ*, *Castoridæ*, *Hystricidæ*, and *Castoroididæ* by Dr.

Allen. Of these groups the *Zapodidæ* constitute a family established for the reception of a single species—the Long-legged Mouse or Jumping Mouse, originally described as a Jerboa, under the name of *Dipus hudsonius*, but which, according to Dr. Coues, exhibits characters distinguishing it quite as much from the true *Dipodidæ* as from the *Muridæ*. The family *Castoroididæ* is a new one, proposed for the reception of the great extinct Rodent, *Castoroides ohioensis*, the remains of which have been obtained from post-tertiary deposits in various parts of North America. This animal, which was about the size of an adult black bear, was long supposed to have been a gigantic beaver. Dr. Allen, however, places it in the Hystricine group. It is the largest known Rodent, except an extinct Capybara (*Hydrochœrus*) described by Lund, from the Brazilian Bone Caves.

"Each of the above families is treated monographically, its position in the system being discussed, its genera and species, and the habits of the latter, described, and its bibliography given. Under some of the families, the extinct North American species belonging to them are noticed, and in an appendix Dr. Allen gives a list of the known extinct *Rodentia* of North America, with short notices of those not referred to in the monographs. A second Appendix contains a valuable bibliographical list of works relating to North American Mammals, by Dr. T. Gill and Dr. Coues; and the volume is illustrated chiefly with wood engravings of the skulls of *Muridæ*."

The Fur-bearing Animals: a Monograph of the North American Mustelidæ. By Elliott Coues. 8vo, pp. 348. Washington, 1877.

This is another of the American Government publications, of smaller size than the work last noticed, but of no less importance and value. It forms Volume VIII. of the 'Miscellaneous Publications' issued by the U.S. Geological Survey Department, under the able superintendence of Dr. Hayden, and, relating as it does to a group of animals on which a large majority of mankind are more or less dependent for warm covering, it may be said to possess a greater interest for the general public than most scientific works of the kind usually do.

In this volume the fur-bearing animals dealt with are those belonging to the family *Mustelidæ*, of which North America appears to possess nine—the Wolverine, Martens, Weasels, Skunk, Badger, Otter, and Sea Otter. These animals are all described in scientific form, and the descriptions are accompanied by a complete *résumé* of all the particulars relating to the natural history of the animals, which have been accumulated by a long series of observations on the part of the zoologists of the United States upon the species living within their range, and by the perhaps somewhat interested remarks of the hunters and trappers, who are, to a considerable extent, dependent on their knowledge of the habits of the animals for the successful prosecution of their trade. In fact, the volume furnishes an admirable monograph of the North American species of the carnivorous family of which it treats. The osteological characters, and especially the cranial peculiarities, which appear to be of special importance, are fully described, and the latter are illustrated by twenty plates containing sixty figures.

The account which is given of the Ermine, and of the change of colour in its fur which takes place at the approach of winter, is extremely interesting. Of the two species of Marten which are found in North America, both are considered by the author to be distinct from the Pine Marten and Beech Marten of Europe. In order to institute a proper comparison between these two latter animals and *M. americana*, Dr. Coues has given a full account of all three, embracing the synonymy, and a description of the skull and teeth of each, illustrated by woodcuts.

This leads us to observe that the present volume, although dealing with American mammals, possesses more than usual interest for British zoologists, since they will find in it much valuable information concerning animals which may be found in their own country.

The Moor and the Loch: containing Minute Instructions in al Highland Sports. By JOHN COLQUHOUN. Fourth Edition, enlarged. 2 vols., 8vo. Edinburgh and London: Blackwood and Son. 1878.

SPORT and Natural History are so intimately connected that it is difficult to conceive how a man can be addicted to the one without also cultivating a taste for the other. And yet how many books on sport have been published by writers who have had no pretensions to the name of naturalist. Where attention is confined to a particular branch of sport, as Tiger-shooting, Fox-hunting, Salmon-fishing, and the like, this is perhaps of little moment, although it must be apparent that a knowledge of an animal's haunts and habits, time and manner of feeding, and the nature of its food, gained by a study of its natural history, must be of considerable advantage to the sportsman who intends to be successful. But with writers who treat of the general subject, or recount the result of their travels or excursions in little-known countries, the case is different. Either from necessity and for food, or from choice and for amusement, they come in contact with such a variety of game, both four-footed and winged, that to avoid confusion and misunderstanding, some precision in identifying and describing the different species is absolutely necessary. It is needless to say that this precision is only to be gained by a study of Natural History, and the want of it has considerably depreciated the value of many a well-written and otherwise entertaining book on sport and adventure.

Books of the kind before us, therefore, may be divided into two classes: those penned by sportsmen who have some acquaintance with Natural History; and those written by lovers of rod and gun, who have no knowledge beyond that which is requisite to fill their creel or game-bag.

Mr. Colquhoun's work is of the former class, and on this account has the more merit. Residing in a wild and extremely picturesque part of Scotland, in the midst of game of all kinds, with ample leisure for observation, and for sport in almost all its branches, Mr. Colquhoun has enjoyed opportunities which fall to the lot of few. A more favourable observatory for a naturalist than his home on the banks of Loch Awe, as he himself remarks, could perhaps scarcely be found. The crow of the Moorcock is heard from the window; the bell of the Roebuck, in the adjacent hanging wood, sounds close to the door; a good eye and glass may command the correis of Ben Cruachan; infinite varieties of wild fowl crowd the loch, in winter, many of them rare arctic visitors; the salmon streams of the Awe and Orchy are within easy distance, and the mighty *Salmo ferox* roams the shore for miles.

Thus favourably situated, it is not surprising that Mr. Colquhoun, in an experience extending over forty years, should have acquired a fund of sporting anecdote and Natural-History lore, of which probably the work before us gives but a small sample.

The fact of the book having reached a fourth edition, and having doubled its original size (the present issue being in two volumes instead of one), is of itself almost enough to disarm the critic, although the mere fact of a book passing through several editions is not always to be viewed as an indication of merit. In the present case, however, the author has laid himself open to very little criticism, and in one chapter only does he appear to have got at all out of his depth. This is the chapter on Hawking, in the second volume. Had he confined his remarks in this chapter to the account which he gives of a day's partridge-hawking in Dumbartonshire, no exception could possibly be taken, for his description is that of an eye-witness, the falconer being a gamekeeper and former pupil of old John Anderson, of hawking memory. But when, by way of preface to this narrative, he attempts a notice of the different hawks used by falconers, he makes half-a-dozen mistakes in almost as many lines. Had he possessed any personal knowledge of the subject, or even a slight acquaintance with its literature, he would not have committed himself to such misstatements as that the young male of the Goshawk is the Falcon-gentil, "and was once thought a distinct species"; that the Gerfalcon is "rather less than the gentil"; and that "these are rare in Scotland, although they occasionally build in some parts, particularly in the northern islands"!

In other chapters such slips as these do not occur, for the simple reason that Mr. Colquhoun has made sure of his facts by personal observation. His first volume deals with Deer-stalking, Roe-hunting, Seal-shooting, and the pursuit of Capercaillie, Grouse, Ptarmigan, Woodcock, Snipe, and Wild-fowl, in the details of which the author has judiciously mingled much practical advice with the narrative of many a sporting incident. On this account, to a sportsman, his chapters are eminently readable and entertaining.

A considerable portion of the second volume is devoted to Fishing in all its branches on loch, sea and river, but the earlier chapters are occupied with some account of the various wild animals which the author has met with in the course of his rambles, as the Marten, the Wild Cat, the Otter, and Badger.

We are at a loss to know how Mr. Colquhoun came to form the opinion that the Marten is not indigenous to the British Islands. At page 165 he says, "this beautiful creature is, as I have stated in a previous chapter (p. 79), an importation from the forests of America"!

This is evidently a misapprehension. Not only would it not be difficult to find evidence of the existence of Martens in the British Islands long before the discovery of America (according to Sir Robert Gordon* they were found in Scotland prior to 1630), but the American Martens, of which there are two species, *M. americana* and *Pennantii*, are regarded by the best authorities as specifically distinct from ours:† and even were it otherwise, there would be no need to go to America for the origin of our British race, since both the Pine and the Beech Marten are generally distributed throughout Western Europe, occurring in France and Italy, inhabiting the temperate parts of Russia, and occurring also in the Crimea and Caucasus.‡ We believe the two forms to which the above names are applied are now generally regarded by zoologists as specifically distinct. Mr. Colquhoun considers them to be merely the sexes of one species.

Space does not permit us to examine the arguments which have been adduced in support of these different views, and we must therefore refer our readers to what has been stated thereon in the second edition of Bell's 'British Quadrupeds,' where the question of the specific identity or otherwise of the two forms is fully discussed, and the conclusion arrived at is that they are distinct.

In concluding our notice of Mr. Colquhoun's book, we may remark that the pleasant way in which he has mingled his observations on the habits of game and wild animals in Scotland with an account of his successful pursuit of them render it attractive alike to the sportsman and the naturalist.

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* 'History of the Earldom of Sutherland.'

† Dr. Elliott Coues, in his 'Monograph of the Fur-bearing Animals of North America,' observes (p. 74):—"The material before me indicates, with little hazard of error, that the American form is specifically distinct from both the Beech Marten and the Pine Marten of Europe."

‡ See Lord Clermont's 'Guide to the Quadrupeds and Reptiles of Europe,' p. 58.